

Re: BNA: Seismic Activity Caused by Fluid Injection During Fracking , B.C. Commission Reports 

Susie McKenzie to: Jill Dean

09/05/2012 08:14 AM

Cc: Ken-E Johnson, Rob Lawrence, graves.brian, dellinger.philip

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Thanks.

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Date: 09/05/2012 07:29 AM

Subject: BNA: Seismic Activity Caused by Fluid Injection During Fracking, B.C. Commission Reports

Good morning! :)

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----- Forwarded by Jill Dean/DC/USEPA/US on 09/05/2012 08:28 AM -----

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Drilling: Seismic Activity Caused by Fluid Injection During Fracking, B.C. Commission Reports

By [Jeremy Hainsworth](#)

VANCOUVER, B.C.—Unusual seismic events observed in remote areas of British Columbia's northeastern Horn River Basin shale gas region between 2009 and 2011 were caused by fault movement resulting from fluid injection during hydraulic fracturing near pre-existing faults, a B.C. Oil and Gas Commission [study](#) has concluded.

The 38 events ranged in magnitude between 2.2 and 3.8 on the Richter scale, said the study, released Aug. 30.

“As fluid is injected, it flows into the existing pore system of the rock and into pre-existing fractures and faults. Across faults injection can increase pore pressure, counter-acting normal stress across the fault and may act to open an existing fault plane. This overcomes friction along the fault and can cause fault slippage,” the report said.

“Fault movement can occur when previously stable subsurface stress conditions are altered,” the report said. “Human activities that can alter these stress conditions include fluid injection for secondary recovery in hydrocarbon reservoirs, injection of waste fluids into deep rock formations, withdrawal of hydrocarbons from reservoirs and geothermal energy operations involving deep fluid injection.”

Hydraulic fracturing, also known as fracking, is a high-pressure drilling method that injects water treated with chemicals into the earth to fracture shale formations and release oil, natural gas, and natural gas liquids.

The commission made seven recommendations, including submitting microseismic reports to monitor hydraulic fracturing for containment of micro fracturing and to identify existing faults, establishing notification and consultation procedures, studying the relationship between hydraulic fracturing parameters such as fluid injection rates and seismicity, and upgrading and improving the Canadian province's seismograph grid and monitoring procedures.

Hydraulic fracturing operations in the study area were conducted from February 2007 to late July 2011, the study said. During this period, 14 drilling pads were used to drill more than 90 wells with more than 1,600 hydraulic fracturing stage completion operations.

The commission has initiated a broader study with the University of British Columbia to examine the extent, magnitude, impact, and control of induced seismicity.

The U.S.-based National Research Council said in a report released June 15 that hydraulic fracturing for oil and gas production poses only a low risk of triggering earthquakes strong enough for anyone to feel, but wastewater injection disposal wells pose a larger risk, and an even greater risk may come from carbon capture and storage ([116 DEN A-8, 6/18/12](#)).

The British Columbia report said disposal wells were ruled out as a source of the seismicity during the Oil and Gas Commission investigation.

The commission said that none of the reported events caused any injury, property damage, or posed any risk to public safety or the environment.

For More Information

The report, Investigation of Observed Seismicity in the Horn River Basin, is available at <http://op.bna.com/env.nsf/r?Open=phey-8xtqxt>.

